

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : Unknown  
Applicant : Hans-Christoph MAGEL et al  
Filed : Unknown  
TC/A.U. : Unknown  
Examiner : Unknown  
  
Docket No. : R.302664  
Customer No. : 02119

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Date: December 8, 2004

**INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97(b),  
AND EXPLANATION OF THE RELEVANCE OF THE CITED PRIOR ART**

Sir:

The undersigned hereby requests that the prior art cited on the attached prior art statement be placed of record in the application file and be considered by the examiner.

This citation of prior art is made under 37 CFR 1.97(b), since it is being filed within three months of the filing date and before the mailing of a first Office action.

The relevance of the prior art cited on the attached form 1449 is as follows:

**JP 61-53455**

This patent teaches a fuel injection nozzle in which the optimum fuel feed rate is controlled. The fuel injection nozzle is divided into two parts - the main and auxiliary nozzles. The high pressure fuel fed to a fuel feed passage (5) enters a main accumulator chamber (25) through a check valve (26) and is opened against a high pressure chamber (12). An interconnecting hole with a spring (27) is filled up to the tip end of the needle valve (22) in the main nozzle (1). This high pressure fuel reaches the side of the auxiliary nozzle (2) by way of a fuel passage (29) and opens a check valve (43). The fuel then enters an auxiliary accumulator chamber (42). This chamber is filled up to the tip end side of the needle valve (39). When the solenoid valve (4) is turned off and two interconnecting passages (5,7) are interconnected with each other, a low pressure piston (6) is forced to contract. Fuel in each of the chambers (12, 25 and 42) is pressurized by a high pressure plunger (9). When the solenoid valve (4) is turned on the piston (6) is allowed to expand. Fuel is ejected out of a nozzle (18) with the rise of the needle valve (22) and then ejected out of another nozzle hole (35) with the rise of another needle valve (39) in regular sequence.

**DE 100 58 153 A1**

This patent teaches an injection nozzle for internal combustion engines. The nozzle comprises a first nozzle needle (7) and a second nozzle needle (27), whereby both can be controlled independently of one another. The second injection nozzle is opened by reducing the pressure of a hydraulic fluid inside a control space (37). As a result, the injection rate and

the atomization of the fuel inside the combustion chamber can be influenced in broad ranges and, in addition, a rate-of-discharge curve can be formed.

**DE 199 10 970 A1**

This patent teaches a fuel injection system (1) comprising a pressure intensifying unit (9) arranged between a pressure accumulation chamber (6) and a nozzle chamber (16). The pressure chamber (14) of the pressure intensifying unit is connected to said nozzle chamber (16) via a pressure line (20). In addition, a bypass line (28) is provided which is connected to the pressure accumulation chamber (6). The bypass line (28) is directly connected to the pressure line. The bypass line (28) can be used to effect pressure injection and is arranged parallel to the pressure chamber (14). This enables the bypass line (28) to be passed through regardless of the movement and position of a displaceable pressure means (12) of the pressure intensifying unit (9).

**US 6,453,875 B1**

This patent is in the same family as DE 199 10 970 A1 and is provided as an aid to the examiner.

**WO 02/09/3001 A1**

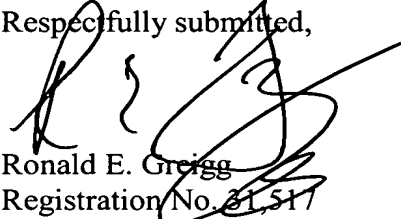
This patent teaches a fuel injection device for internal combustion engines with a fuel injector supplied by a high pressure fuel source. A pressure amplification device is also disclosed. The closing piston (13, 113) of the injector extends into a closing pressure chamber (12, 112) such that the closing piston may be pressurized by fuel pressure to produce a force, acting of the closing piston in the closing direction. The closing pressure chamber (12, 112)

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and the return chamber (27, 127) of the pressure amplification device are formed by a common closing pressure/return chamber (12, 27, 41, 112, 127, 141). All the partial regions (12, 27, 112, 127) of the closing pressure/return chamber are permanently connected to each other (41, 141) for the exchange of fuel. This is so that despite a low pressure amplification by the pressure amplification device, a relatively low injection opening pressure may be achieved.

Examination of this application is respectfully requested.

Respectfully submitted,



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**INFORMATION DISCLOSURE CITATION**  
*(Use several sheets if necessary)*

Docket Number (Optional)

R.302664

Application Number

10/517401

Applicant(s)

Hans-Christoph MAGEL et al

Filing Date

Group Art Unit

**U.S. PATENT DOCUMENTS**

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		6,453,875 B1	09-24-2002	Bernd MAHR et al			

**U.S. PATENT APPLICATION PUBLICATIONS**

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

**FOREIGN PATENT DOCUMENTS**

	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							YES	NO
		JP 61-53455	03-17-1986	Japan				✓
		DE 100 58 153 A1	06-06-2002	Germany				✓
		DE 199 10 970 A1	09-28-2000	Germany			✓	
		WO 02/093001 A1	11-21-2002	PCT				✓

**OTHER DOCUMENTS***(Including Author, Title, Date, Pertinent Pages, Etc.)*


EXAMINER

DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP Section 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.